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(71) Applicants and

(72) Inventors: **KAPLAN, Harvey** [CA/CA]; 432 Crestview Rd., Ottawa, Ontario K1H 5G9 (CA). **KING, Mary, Catherine** [CA/CA]; 810 Connaught Ave. #304, Ottawa, Ontario K2B 5M4 (CA). **STEWART, Nicolas, Andre, Stirling** [CA/CA]; 140 Riga Pnv, Ottawa, Ontario K2B 8N7 (CA).

(74) Agent: **OGILVY RENAULT**; Suite 2100, P.O. Box 141, Royal Trust Tower, TD Centre, Toronto, Ontario M5K 1H1 (CA).

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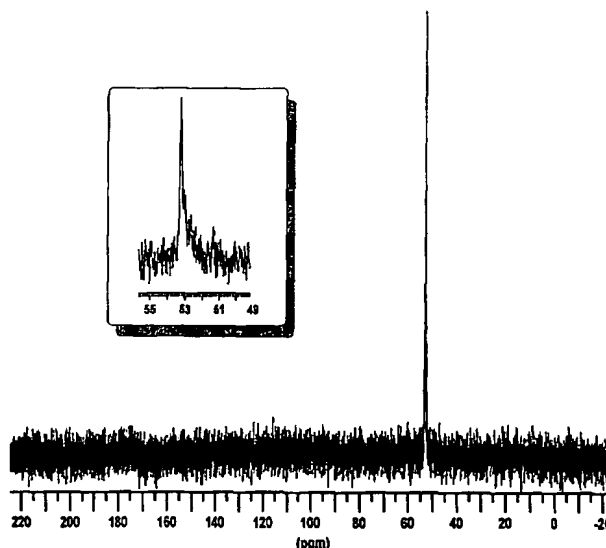
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(54) Title: IN VACUO GLYCATION OF PROTEINS



(57) **Abstract:** It has been discovered that facile glycation of proteins can be achieved by colyophilization of a protein with a reducing sugar, subjecting the lyophilized mixture to a vacuum (10 to 50 millitorr) and incubating at an elevated temperature (50 to 100°C) for 1 to 24 h. A stable ketoamine derivative is formed with amino groups in the protein and no advanced glycation end products (browning reaction) are observed, as is the case with aqueous glycation procedures. Another novel feature is that the in vacuo glycation reaction takes place with the protonated amine and not the deprotonated amine as is believed to be the case for aqueous glycation reactions. Advantage can be taken of the in vacuo glycation reaction to achieve facile covalent cross-linking of proteins by lyophilizing protein or proteins with compounds containing two or more reducing sugars separated by a linker.

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